



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,785	10/17/2003	Gaurav Singh	RZMI-P308	9859
32986	7590	01/27/2006		
IPSG, P.C. P.O. BOX 700640 SAN JOSE, CA 95170-0640			EXAMINER PORTKA, GARY J	
			ART UNIT	PAPER NUMBER
			2188	
DATE MAILED: 01/27/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/687,785

Applicant(s)

SINGH ET AL.

Examiner

Gary J. Portka

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-21 are presented for examination.

Claim Objections

2. Claims 1, 11, and 21 are objected to because of the following informalities:

These claims recite coupling tables to a memory. However, a table is generally not a physical thing but rather a logical construct. Should the claims recite coupling the memory the tables are stored in to the second memory? This interpretation is used in determining whether prior art reads on this limitation. Appropriate correction or clarification is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 10 and 20 each recite that a table has a configurable width span across a space designated for at least two channels. The metes and bounds intended by this limitation are not clear. It is not clear what "space" is designated for a channel, or to what "space" refers. Since two channels could also share connections at different times, it is also not clear whether the claim covers a table of a single channel width, since the space would still be designated for two channels.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 5-6, 8, 11-13, 15-16, 18, and 21 are rejected under 35 U.S.C. 102(a) as being anticipated by the admitted prior art.

7. As to claims 1, 11, and 21, the admitted prior art of Fig. 1 and paras. 2-3 disclose a configurable lookup table extension system as recited, comprising plurality of lookup tables arranged in a first memory (para. 3, "each of the internal tables"), second memory (e.g., MAC Table External Memory 112), and flexible controller configured to couple at least one table to the second memory through a single memory interface (e.g., External MAC Table Interface 108).

8. As to claims 2-3, 5-6, 8, 12-13, 15-16, and 18, the admitted prior art discloses the internal and external memory, SRAM and DRAM, IP and MAC types, MC, NHT, and LPM types, and plurality of data and address signals as recited.

9. Claims 1, 8, 11, 18, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Melchior, US 6,473,846 B1.

10. As to claims 1, 8, 11, 18, and 21, Melchior discloses a configurable lookup table extension system as recited, comprising plurality of lookup tables arranged in a first memory (see Abstract, RAM 108 of Fig. 2, and col. 5 lines 50-55), second memory (memory of the CAM Engine 100, e.g., Output FIFO 136, Fig. 1), and flexible controller configured to couple at least one table to the second memory through a single memory interface (interface 124 and 128, Figs. 1 and 2).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 4, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art.

13. As to claim 4, the admitted prior art does not disclose that the first and second memories are both SRAM. However, it does disclose that the first memory is SRAM and the second is DRAM. An artisan would have been quite familiar with the advantages and shortcomings of each of these memory types, and would have known that having both memories as SRAM would increase the cost, but also increase the performance. One of ordinary skill in the art at the time of the invention thus would have been motivated by increased performance, if such was desired, to use SRAM for both memories.

14. As to claim 7, the admitted prior art discloses table configured for packet processing, and access queue coupling to the second memory (the interfaces of Fig. 1 would be required to be access "queues" unless out-of-order accesses are provided for, which is not disclosed). The admitted prior art also discloses the second memory may be DRAM, but does not disclose that the second memory has a plurality of banks. However, an artisan would have known that DRAM in general contains a plurality of banks, and thus would have expected that the access must couple to at least one bank as recited.

15. Claims 9-10 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, in view of Nataraj et al., US 6,757,779 B1.

16. As to claim 9, the admitted prior art does not disclose tables of the second memory having configurable width and depth. However, Nataraj has taught that this is beneficial to allow a CAM to store and maintain a different table size for each mode of operation (see Nataraj col. 22 lines 31-45). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use a second memory with configurable width and depth, because this was known to allow a CAM to store different table sizes for each mode of operation as desired.

17. As to claim 10, the combination of the admitted prior art and Nataraj as described above would apparently have a configurable table span a space designated for at least two channels to the extent recited (also see 35 USC 112 rejection above).

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent No:

6,732,184 Management of address table overflow.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary J. Portka whose telephone number is (571) 272-4211. The examiner can normally be reached on M-F 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

January 23, 2006

Gary J Portka
Primary Examiner
Art Unit 2188



**GARY PORTKA
PRIMARY EXAMINER**